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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,579	06/20/2006	Christian Walsdorff	285214US0PCT	2521

22850 7590 04/10/2007  
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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NGUYEN, NGOC YEN M

ART UNIT	PAPER NUMBER
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1754

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/10/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/10/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/567,579

Applicant(s)

WALSDORFF ET AL.

Examiner

Ngoc-Yen M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Itoh et al (4,774,070).

Itoh '070 discloses a process for producing chlorine by oxidizing an offgas by-product of a reaction step of an organic compound containing hydrogen chloride therein, which comprises the following steps:

- (1) subjecting the hydrogen chloride to an oxidation reaction at a temperature of 300 - 500°C. in the presence of a chromic oxide catalyst by using oxygen in an amount of 0.25 mole or more per mole of the hydrogen chloride contained in the offgas to produce a reaction mixture;
- (2) cooling said reaction mixture, which comprises chlorine, water, unreacted hydrogen chloride, oxygen and vaporized chromium, and then washing same with water at a temperature of 90 - 130°C. in a washing column, thereby recovering the chromium as an aqueous solution and yielding a remaining portion of gas;
- (3) washing said remaining portion of gas again with water to absorb the unreacted hydrogen chloride in the water, so that the unreacted hydrogen chloride is recovered as an aqueous hydrogen chloride solution and yielding in a second remaining portion of

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gas;

(4) washing the second remaining portion of gas with sulfuric acid to remove water therefrom and to thereby yield a third remaining portion of gas;

(5) compressing and cooling the third remaining portion of gas, said portion comprising chlorine and unreacted oxygen, whereby the chlorine is separated as liquefied chlorine from the third remaining portion of gas thereby yielding a fourth remaining portion of gas; and

(6) recycling a portion or all of said fourth remaining portion of gas, which has been obtained after separation of said liquefied chlorine and comprises oxygen, as a circulating gas to the oxidation step (1) (note claim 1).

Itoh '070 discloses that the reactor may be fixed-bed reactor with the catalyst packed therein, a fluidized bed reactor with the catalyst maintained in a fluidized state or a reactor making use of both fixed-bed and fluidized bed systems (note column 5, lines 19-31). When both fixed-bed and fluidized bed systems are used, the reactants are either passed through the fixed bed first then through the fluidized bed or they passed through the fluidized bed first then through the fixed bed, thus, the teaching of Itoh '070 fairly teaches, with sufficient specificity, passing the reactants through the fluidized bed first then through the fixed bed, as required by the instant claim.

For claim 6, steps (3)-(5) of Itoh '070 are considered the same as the required claims d1)-d3), respectively. Also, the distillation step as shown in Figure 1, item (32) is considered as the purify step as required in step d4) (note column 9, lines 10-13).

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For claim 7, Itoh '070 teaches that HCl recovered from step (3) can be recycled as the reactant for the process (note column 8, lines 8-15).

For claim 8, step (6) of Itoh '070 teaches the step of recycling oxygen.

The process of Itoh anticipates the claimed process.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itoh '070 in view of Abekawa et al (5,908,607)

Itoh '070 discloses a process for producing chlorine as stated in the above rejection.

For the reaction temperature and the number of fixed bed reactor or temperature zone, it would have been obvious to one skilled in the art to optimize these process conditions through routine optimization in order to obtain the best results.

The difference is Itoh '070 does not disclose the use of a ruthenium oxide.

Abekawa '607 discloses a process for producing chlorine using a ruthenium oxide catalyst which is supported on silica, titania, zirconia or alumina (note Examples 11-22).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to use ruthenium catalyst, as suggested by Abekawa '607, for the process of Itoh '070 because such catalyst has high activity.

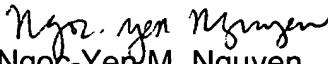
Abekawa '607 can further be applied to teach that fluidized bed and fixed bed reactors, each has each own advantages (note column 6, lines 45-64), and based on these advantages, it would have been obvious to one skilled in the art to select the best arrangement for combination of fluidized bed and fixed bed and the best conditions for each bed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on a Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Ngoc-Yen M. Nguyen  
Primary Examiner  
Art Unit 1754

nmn  
March 30, 2007